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S/N 09/893792

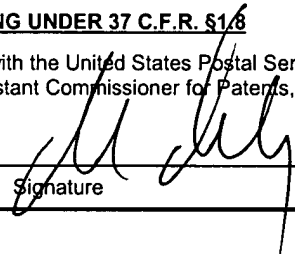
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:		Examiner:	
Serial No.:	09/893792	Group Art Unit:	2161
Filed:	6/28/01	Docket No.:	930.333USW1
Title:	TELECOMMUNICATION SYSTEM AND METHOD WITH LOCATION CRITERIA IN CALL REQUESTS		

CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8

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Michael B. Lasky	
Name	Signature

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Dear Sir:

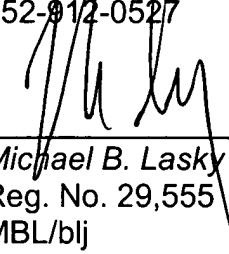
Enclosed is a certified copy of Great Britain application, Serial Number 9828827.7, filed 30 December 1998, the priority of which is claimed under 35 U.S.C. §119.

Respectfully submitted,

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Date: October 17, 2001

By:



Michael B. Lasky
Reg. No. 29,555
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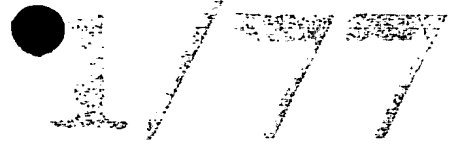
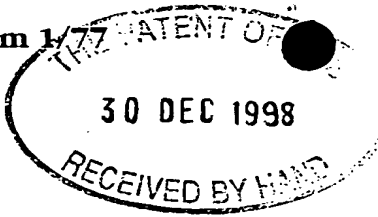
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The Patent Office

Cardiff Road
Newport
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1. Your reference

87138/KCS/DG

2. Patent application number

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9828827.7

3. Full name, address and postcode of the or of each applicant *(underline all surnames)*

NOKIA TELECOMMUNICATIONS OY
KEILALAHDENTIE 4
02150 ESPOO
FINLAND

Patents ADP number *(if you know it)*

072984330

If the applicant is a corporate body, give the country/state of its incorporation

FINLAND

4. Title of the invention

TELECOMMUNICATION SYSTEM AND METHOD

5. Name of your agent *(if you have one)*

"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*

PAGE WHITE & FARRER
54 DOUGHTY STREET
LONDON
WC1N 2LS

Patents ADP number *(if you know it)*

1255003

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

Country	Priority application number <i>(if you know it)</i>	Date of filing <i>(day / month / year)</i>
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7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

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8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:*

YES

- a) any applicant named in part 3 is not an inventor, or
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11.

I/We request the grant of a patent on the basis of this application.

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Date 30.12.1998

12. Name and daytime telephone number of person to contact in the United Kingdom

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5

TELECOMMUNICATION SYSTEM AND METHOD

10 The present invention relates to a telecommunication system and method. The system can be a wireless cellular telecommunications system or a wired network.

15 In known wireless cellular telecommunications networks, the area covered by the network is divided into a number of cells which may overlap. A number of base transceiver stations are provided, each of which is associated with a cell or one or more cell sectors. Each base transceiver station will thus be able to communicate with terminals located in the associated cell. These terminals may be fixed terminals or mobile stations. Each mobile station will be able to move between the cells and will therefore
20 communicate with different base transceiver stations depending on the location of the mobile station. In some systems, a terminal may communicate with more than one base station at the same time.

25 It has been proposed to introduce mobile access hunting (MAH) into the GSM (Global System for Mobile communications) standard for wireless cellular networks. MAH allows an incoming call to be connected to any one of a group of users. This would be useful for those companies who provide services to their customers where
30 the employees are usually in the field and it is unimportant as to which particular employee is contacted. Such companies may include those providing taxi services, repair services or the like.

35 The company will have one or more common numbers for incoming calls from customers. Each one of the group members will have a mobile station with an individual number. The incoming calls will be routed to an available number out of the individual numbers of the group members. Once a mobile access has been selected,
40 normal call set up procedures apply and the mobile access hunting procedures are considered completed. The order in which the

5 individual members of the group are contacted will be specified by the company having the group number. Thus if the first specified number is unavailable, the next number will be tried and so on.

10 Universal access numbers (UAN) have also been proposed to be included in the GSM standard. UAN are similar in concept to MAH. However, there is a fixed number or UAN for a given category of
15 people, such as doctors. Thus when the UAN is dialled, a connection will be made with a doctor available via the UAN number. As with MAH, there will be a hierarchy in the group of
20 doctors contactable via the UAN. As with MAH, if the first individual in the hierarchy is unavailable, then the next individual specified in the hierarchy will be contacted and so on. Each doctor contactable via the UAN will have his own individual number.

However, both of these proposals suffer from the same problem. In particular, the caller, whether a customer or patient, will not be connected to the most appropriate employee or doctor.
25 Accordingly the time taken for the particular employee or doctor to reach the caller may be unnecessarily increased.

It is therefore an aim of embodiments of the present invention to avoid or at least reduce the problems of the known proposals.
30

According to one aspect of the present invention there is provided a telecommunications system comprising a first station and a plurality of second stations, the first station being arranged to request a connection with at least one of said
35 plurality of second stations, said connection request comprising a location criteria to be satisfied by said at least one second station.

Thus a first station is able to contact a second station at a defined location without necessarily knowing the individual
40 identity of the second station. In some embodiments, a first

5 station may be arranged to be connected to more than one second station at the same time, for example for a conference call.

10 The location criteria can be the closest second station to the first station or can be defined in terms of a direction, call cost and/or distance from the first station. Alternatively the location criteria can be an absolute location. The distance may be defined as the direct distance from the first station or the road or the like distance. The road or the like distance may be larger than the direct distance. The distance may alternatively
15 be defined in terms of time taken to travel from the second user to the first user. The location criteria may be the closest or any appropriate user in the same cell or cell sector as the first user. The location criteria can alternatively specify at least one cell or cell sector which may or may not include the cell in
20 which the user is currently located.

Preferably, at least one register is provided for storing location information of at least some of said second stations and/or said first station. The at least one register can be
25 provided at any suitable location: in the first station; in the second station, in a network element such as a base station; a base station controller; or a mobile services switching centre. Alternatively, the at least one register may be separate from the elements described hereinbefore but accessible thereby. Where
30 more than one register is provided, the registers may be at the same or different locations. If more than one register is provided, different users can be associated with different registers. A user may be associated with more than one register. In this latter case, the same, different or overlapping
35 information can be stored for each user in a plurality of registers. The information stored in the at least one register may include information other than location information.

40 As an alternative or additionally at least one register, at least one processor may be provided. The at least one processor may be arranged to calculate and/or obtain location information. This

5 may be done in real time.

The first station may attempt to initiate a connection with any second station satisfying the location criteria. Alternatively, the first station is arranged to initiate a connection with a second station satisfying the location criteria and falling in a predetermined group of second stations.

A predefined location criteria may be associated with the predetermined group. For example, when an emergency number is dialled, the closest available second station is contacted.

The predetermined group may have a predetermined identifier associated therewith. This may be similar to the universal access number or the mobile access hunting number. The predetermined group may be preset. Alternatively, the predetermined group may be defined by the user of the first station.

Preferably, means are provided for determining which stations satisfy the location criteria. Information as to which second stations satisfy the location criteria may be sent to the first station. The first station may comprise means for selecting one or more of said second stations based on said information. Alternatively, the determining means may be arranged to define an order in which connections to second stations satisfying the location criteria are to be attempted. The determining means may be arranged to attempt connections to second stations satisfying the location criteria randomly.

Preferably, at least one of said second stations is arranged to be able to prevent a connection with the first station if the first station has made a connection request based on the location of the at least one second station. The second user may be arranged to accept calls based on location only from certain other users or may not accept calls based on location from certain other users. The second station may block calls in such circumstances or may not be included in the search presented to

5 the first station. The second user may not be included in the
search or presented to the first user if for example the second
user is busy. It is preferred that the second stations be able
to change their status so that sometimes a second station will
be able to receive calls, based on location, and at other times
10 the connection is prevented.

A second station satisfying the location criteria may receive a
message indicating that a first station wishes to make contact
therewith. The second station receiving said message may be
15 arranged to indicate if the call is to be accepted or if the
second user can be listed or presented to the first user.

Preferably said connection request also comprises information
identifying at least one second station and a call is made
20 between said first and the identified at least one station only
if the location criteria is satisfied. Preferably if the second
does not satisfy the location criteria at the time the connection
request is made, the system is arranged to make the call at a
subsequent time when the second station satisfies the location
25 criteria.

The first station and/or at least one of said second stations may
be a mobile terminal. The first station and/or at least one of
said second stations may be a fixed terminal. Thus some of the
30 stations may fixed whilst others may be mobile. The stations may
be part of the same network or may be from separate networks. The
networks may be wireless or wired networks.

According to a second aspect of the present invention there is
35 provided a method for use in a telecommunications system
comprising a first station and a plurality of second stations,
the method comprising the steps of: defining at the first station
a location criteria to be satisfied by at least one second
station; requesting a connection with at least one second station
40 satisfying said criteria; determining which of said second
stations satisfy said criteria; and establishing a connection

5 between said first station and at least one second station
satisfying said location criteria.

10 For a better understanding of the present invention and as to how
the same may be carried into effect, reference will now be made
by way of example to the accompanying drawings in which:

15 Figure 1 shows schematically a cellular telecommunication network
in which embodiments of the present invention can be implemented;
Figure 2 shows part of the hierarchy of the network shown in
Figure 1.

20 Reference will first be made to Figure 1 which shows a wireless
cellular telecommunications network 2 in which embodiments of the
present invention can be implemented. The area covered by the
network 2 is divided into a number of cells 4, only four of which
are shown in Figure 1. It should be appreciated that in practice,
many more than four cells will be provided. Each cell 4 is shown
as having a generally hexagonal shape which allows the area
covered by the network conveniently to be divided up. However,
25 the cells can have any other suitable shape and configuration.
In practice, the cells may overlap.

30 Each cell 4 has a base transceiver station BTS1-4 which
communicates with the mobile terminals MS1-6 located in the cell
4 served by the respective base transceiver station. Thus the
first and second mobile stations MS1 and MS2 communicate with the
first base transceiver station BTS1, the third and fourth mobile
stations MS3 and MS4 communicate with the second base transceiver
station BTS2, the fifth mobile station MS5 communicates with the
35 third base transceiver station BTS3 and the sixth mobile station
MS6 with the fourth base transceiver station BTS4. In practice
each cell will include many more than one or two mobile stations.
However in the interests of clarity, each cell 4 is shown with
only one or two mobile stations.

40 In practice, one mobile station may be in communication with more

5 than one base station at the same time, in for example, a soft
handoff situation in a code division multiple access system.
Where cells overlap, a mobile station may be in more than one
cell at the same time. One mobile station may in certain
embodiments be connected to more than one network at the same
10 time. The networks may conform to the same or different
standards. For example a mobile station may be arranged to be in
communication with a GSM and a CDMA network at the same time. The
two different networks may be overlain.

15 Reference is now made to Figure 2. As can be seen from this
Figure, each of the base transceiver stations BTS1-4 is connected
to a mobile services switching centre MSC which controls the
connections in the network via a respective base station
controller BSC1 and BSC2. The first and second base stations BTS1
20 and BTS2 are connected to the first base station controller BSC1
whilst the third and fourth base stations BTS3 and BTS4 are
connected to the second base station controller BSC2. The first
and second base station controllers BSC1 and BSC2 are connected
to the mobile services switching center.

25 In practice, a plurality of mobile services switching centres MSC
are provided each of which is connected to a number of base
station controllers. In practice, each base station controller
is connected to more than two base transceiver stations. Usually,
30 each mobile services switching centre MSC will be connected to
more than two base station controllers.

Each mobile services switching centre MSC is provided with a
location register 6. This location register 6 stores information
35 as to the location of mobile stations in the network. This
location information includes the cell or group of cells in which
a given mobile station is located. The group of cells is
sometimes referred to as the location area. Additionally or
alternatively the position of the mobile station within the cell
40 is also stored. The mobile services switching centre MSC also has
a processor 10 which is able to retrieve information from the

5 location register 6.

Additionally or alternatively the location register 6 can store the absolute geographic location of the mobile phones.

10 The register 6 can be replaced by an external register accessible by the mobile services switching center. An external processor may be used for accessing the register, regardless of whether the register is part of the mobile services switching center or external thereto.

15 The register can be a single register or a plurality of registers. Different information may be stored in different registers. For example the cell or cell group information may be stored in one register with the geographic location stored in
20 another register.

It is a legal requirement of some countries such as the USA that the location of a mobile station be known. This is so that when an emergency call is made from the mobile station, the
25 appropriate emergency service can be sent to the location of the caller, even if the caller does not himself know his location. Accordingly a number of standards which have been proposed include the requirement that the location of the mobile station be identified. A number of techniques are known which allow the
30 location of the mobile station to be determined. One such technique is that each mobile station incorporates a GPS (global positioning system) receiver. The GPS system relies on a network of satellites which orbit the earth. At any position on earth it is in theory possible for a GPS receiver to receive the signal
35 from a number of satellites. Using the principle of triangulation, it is possible for the GPS receiver to determine the location of the mobile station. It should be appreciated that any other suitable location determining technique can alternatively be used in embodiments of the present invention.

40 The cell 4 or cells in which a given mobile station is located

5 is identified by determining with which base transceiver
station(s) the mobile station is associated. This information is
passed to the mobile services switching centre MSC or to a
register. This information is stored in the location register 6
or other register(s) as discussed hereinbefore. The position of
10 the given mobile station, obtained using the hereinbefore
described technique or any other suitable location technique, is
passed to the mobile services switching centre MSC via the base
transceiver station(s) associated with the cell(s) in which the
mobile station is located.

15 As discussed hereinbefore, in some embodiments of the present
invention only the cell or cells in which the mobile is located
or only the location of the mobile station is stored in the
location register. It is possible in alternative embodiments
20 which store both the location of the mobile and the cell or cells
in which the mobile is located that this information can be
stored in the same or different registers.

The register(s) may be internal or external to: the first mobile
25 station, the second mobile station, the base transceiver station,
the base station controller, the mobile services switching
center; and/or any other suitable network element. Different
networks may have separate registers.

30 Where more than one register is provided, different users may be
associated with different registers. One user may be associated
with more than one register. The same different or partially
overlapping information relating to a given user can be stored
in the plurality of registers. The information can include
35 information other than location information such as the
capabilities of a user, his tariff details etc. Where more than
one register is provided, the registers may be located in
different places and/or be associated with different types of
network elements.

40 In one modification to the embodiment described hereinbefore, the

5 location register is not located in a mobile services switching centre MSC but is instead in a separate location service centre. This location service centre may be connected to receive information from all of the mobile services switching centres or other network elements in existing networks.

10 In a first example, a walker gets lost or injured in some woods. The walker therefore wishes to contact the closest person with a mobile station to ask for assistance. The walker will switch on his mobile station. The location of the mobile station and hence the walker will be determined as discussed hereinbefore and stored in the location register 6 of the mobile services
15 switching centre MSC. In this example it is assumed that the walker has the first mobile station MS1. The walker will then input, via a keypad of the mobile station, a request that a connection be made with the nearest available mobile station, i.e. the second mobile station MS2.
20

The request that a connection be made with the nearest available mobile station can be input to the mobile station MS1 in a number
25 of different ways. Firstly, there may be a number which should be dialled or another combination of one or more keys which should be actuated if the caller wishes to be connected to the nearest available mobile station. Secondly, the first mobile station MS1 may have a menu of various different options one of which requests a connection with the nearest mobile station when
30 selected. Thirdly the first mobile station MS1 could have a mode in which the party to be called is identified by their location. This mode can be accessed by actuating one or more keys or by selecting this option from a menu. Once this mode has been selected, the caller can identify the desired location of the
35 party to be called.

The location of the party to be called need not be the closest location to the calling party. For example the called party could
40 be defined in terms of call cost, direction and/or distance from the caller. The distance may be the direct distance, the distance

5 by road or the like or defined in terms of travelling time. The
caller may wish to limit the called parties to those which are
using the same network or may include different networks. The
user may define at least one cell or cell sector as the location
of the called party. The at least one cell or cell sector may or
10 may not include the cell in which the user is currently located.
The networks may be wired or wireless networks as will be
discussed hereinafter. Alternatively the mobile station may have
a map stored therein and the user is able to select any location
on this map as the location of a mobile station with which the
15 caller wishes to make contact.

For certain types of call, the area may be predefined. For
example, for emergency calls the caller will automatically be
connected to the closest available party.

20 The connection request is transmitted from the first mobile
station MS1 to the first base transceiver station BTS1. This
request is forwarded to the processor 10 of the mobile services
switching centre MSC via the base station controller BSC1. The
25 mobile services switching center retrieves from the location
register 6 the location of the first mobile station MS1 making
the request. The processor 10 then searches through the location
register 6 for a mobile station having the requested criteria,
that is the second mobile station MS2 if the closest mobile
30 station is required or the mobile station which is in the
selected location. If a connection with the closest mobile
station is required, an attempt to initiate a call between the
first and second mobile stations MS1 and MS2 is carried out in
the normal way.

35 In the interests of privacy, any mobile station will be able to
prevent the receipt of calls which rely on the location of the
called party. This can be achieved in that information that the
mobile station does not wish to receive calls based on location
40 is transmitted by the mobile station to the base transceiver
station with which it is in communication. This information is

5 passed onto the mobile services switching centre MSC. It is possible for a user to define those parties from whom he is prepared to receive calls based on location or those parties from whom he is not prepared to receive calls based on location.

10 For those mobile stations which do not wish to receive calls based on their location, the entry for the given mobile station can be removed either permanently or temporarily from the location register. In this way, the mobile station will not be selected as a mobile station which satisfies a location criteria
15 defined by a third party caller.

Alternatively, the location register may include an entry for each mobile station as to whether or not the user thereof is prepared to receive calls based on the location of the mobile
20 station. As will be apparent, the user of a mobile station can change the status of the mobile station as desired. Thus sometimes the user may be prepared to receive calls based on the location of his mobile station and other times the user may not be prepared to receive such calls. The user may change a set of
25 users from which he is willing and/or is not willing to receive calls based on the location thereof.

In a second example, a user wishes to see if any of his family is at a given location such as at a restaurant or at the user's
30 home. The user will define the location of the restaurant or his home as outlined in the first example and will initiate a call based on this location.

A third example of an embodiment of the invention will now be described. In this case, the user of a mobile terminal wishes to
35 communicate with the closest available doctor to his current location. The user initiates a call, inputting a code or identifier associated with a group of doctors. This code may be a number or the like. This may be the same or similar in concept to mobile access hunting number or the universal access number.
40 Alternatively, the user will enter an indication as to the subset

5 of people with which the user wishes to make contact. In some
embodiments of the invention, some groups of people will be
identified by a group identifier and other groups of people will
be identified by the subset indication or by a list. The subset
10 or list may be defined by the user or may be predefined. A subset
or list may be defined by the user before or when a connection
is initiated or requested. The subset or list are preferably
changeable as required. This can be carried out by the user, by
users wishing to be added to or removed from the list or carried
15 out by a system controller. Information on the defined subset or
list will be forwarded to the network using any suitable
signalling method. For example, general packet radio system
(GPRS) or dedicated signalling can be used.

20 Additionally, the user inputs an indication that the closest
doctor is required or that a doctor satisfying a given location
criteria is required. Alternatively it may be automatically
assumed that the closest doctor is required. The mobile services
switching centre MSC will on receipt of the signals from the
25 mobile station check which of the group of doctors are available
and also determine their location from the information stored in
the location register 6. The processor 10 will determine, based
on the current position of the mobile station initiating the call
and the information retrieved from the register 6, which
30 available mobile station belonging to the group of doctors is
closest to the user initiating the call or satisfies the location
criteria. Any doctor belonging to the group of doctors is able
to select a mode in which that mobile is omitted from
consideration when determining the closest mobile station. This
35 facility can be used for example when the doctor is off duty or
attending to another call.

Any suitable group of people may share a group identifier or be
part of a subset such as plumbers, taxis, employees of the same
company (for internal communication purposes), restaurants,
40 family members, the police, users of the same network and the
like.

5 Instead of initiating a call with a party who satisfies the
required criteria, for certain types of group numbers, all or a
given number of those parties satisfying the specified location
are identified by the processor 10 and information as to these
parties is sent back to the mobile station initiating the call.
10 This information may include one or more of the following: the
name of the party, their location, their phone number, and their
operator (that is to which mobile or fixed network the party
belongs). This information or part thereof is displayed on the
display of the mobile initiating the call. If there is no
15 display, then the information may be delivered to the user
audibly. The user may then select one of the parties which is
displayed. This will cause a connection to be initiated with the
selected party. This may, but not necessarily, require a new
connection to be initiated by the user. Alternatively, selection
20 of a party may automatically result in a call to that party being
initiated.

In the embodiment described hereinbefore, an attempt is made to
connect the user to one party at a time. However, the network may
25 attempt to connect the user to more than one party at the same
time. In other words, the phones of a number of parties would be
called or paged. However once the phone had been answered or a
paging attempt had been successful, the attempts to initiate
connections or page other parties would cease. In another
30 embodiment, the network would attempt to initiate a connection
with a first phone satisfying the required criteria. If that
connection fails within a predetermined time, then an attempt is
made to initiate a connection with another phone satisfying the
required criteria. The processor 10 may prepare a candidate list
35 of mobile phones which includes information as to the order in
which connections with the mobile phones is to be attempted. The
order may be determined by how well the phones satisfy the
criteria. For example, if a call is to be initiated with the
closest available person, then the first phone on the list may
40 be the closest phone and the next phone may be the second closest
phone and so on. The users may alternatively be weighted and the
order of selection is based on the weights. Alternatively, the

5 connections with the phones on the candidate list may be attempted at random.

10 In some embodiments, whilst a connection is being attempted, the search may continue to search for a second user which fits the criteria. Other users may be paged or contacted whilst a connection attempt is being made.

15 It is possible to initiate a call with a number of users at the same time, for example for conference calls. One or more of those users may be selected on the basis of their location.

20 In one modification to embodiments of the present invention, information as to the location of the phones will not be automatically stored in a register but will only be obtained when required. This applies particularly to those embodiments which use group numbers or the like. The location of the user can be obtained as outlined hereinbefore or can be provided by the user in response to a query from the network.

25 In the embodiment described hereinbefore, all of the terminals in the cells are described as being mobile stations. However, it should be appreciated that at least some, and possibly all of these terminals could be fixed terminals. These fixed terminals may be arranged to communicate with the base transceiver station of the cell in which the fixed terminal is located using wireless communication. Alternatively, the fixed terminals may be connected to a dedicated wired private branch exchange PBX or the like.

35 The cell location stored in the location register may be in the form of the identity of the cell itself or may be in the identity of the base transceiver station which is in communication with the given mobile station.

40 The location register of the mobile services switching centre may just store the cell, cell group or cells in which the mobile station is located without information as to the location of the

5 mobile station within the cell. This may be particularly
applicable in urban environments when each cell is quite small.
Thus, it may be sufficient if a caller is able to contact a
doctor who is the same cell as the caller. The contacted doctor
may not be the closest doctor but this may be unimportant if the
10 cell size is only a few hundred metres.

As mentioned hereinbefore, a user can take steps to ensure that
he does not receive calls based on his location. The user can
block all or only some types of calls based on location. For
15 example, the user may agree to be included in some subsets or
groups and not others. This blocking may be permanent or
temporary depending on for example whether or not the user is on
duty. The blocking can result in the station not being included
in a search or not being presented to the user making the call
20 request. The user chose to accept calls only from certain users
based on location or may choose not to receive calls from certain
users based on location. Alternatively, a user which satisfies
a given criteria is asked by the network is he is prepared to
receive such a call based on the outlined criteria or if that
25 user can be added to the list of candidate phones or presented
to the user initiating the call. The network may advise the user
of the identity of the calling party, the request made by the
calling party and/or any other suitable message in order to
assist the user in deciding if he is prepared to receive a call
30 based on a location criteria. The identity of the calling mobile
station can be included in any message sent by the mobile station
or may be inserted by the network. Messages to be sent to the
parties to see if they are prepared to accept calls may be
formulated by the calling party and forwarded by the network.
35 Alternatively, a suitable message may be formulated by the
network.

In one embodiment of the present invention, the user may define
the identifier of the second user with which a connection is
40 desired. However, the first user may also define a location
criteria for that second user. Accordingly, a call will only be
initiated between the first and second user if the second user

5 is in the defined location. In one modification to this, the
location of the second user is monitored and when the second user
is in the defined location, a call may be automatically initiated
or offered between the first and second users. For example, the
10 first user may only wish to talk to the second user if the second
user is in his office. There may be a delay between a call
connection being requested and a call being initiated so that the
second user is only contacted when the user is in the specified
location. This delay can be of the order of minute, hours or
longer.

15 Alternatively or additionally, at least one processor may be
provided for providing location information. This may take place
in real time. The at least one processor may obtain and/or
calculate location information for mobile stations. A mixture of
20 at least one processor and at least one register may be provided.

In embodiments of the present invention, location information
from a mobile station may alternatively be passed to a base
station, a base station controller, a processor(s) as discussed
25 hereinbefore or any other suitable element.

The embodiments described hereinbefore have been in the context
of a wireless cellular network. However, embodiments of the
present invention are also applicable to any other type of
30 wireless communication as well as fixed line networks such as the
conventional public service telephone network (PSTN). As with the
embodiments described hereinbefore, a register is provided in
which the location of the users are stored. Since the users do
not move, there is no need to update the register, unless for
35 example external parameters necessitate reconfiguration. The
external parameters may include network configuration or any
other such parameter. In the same way as described hereinbefore,
a user is able to make a call to any other user by defining the
required location and if necessary the group identifier or
40 subset.

Embodiments of the invention can be used in a system including

5 both wireless and wired networks. In this case, the processor
will look for any phone, be it a fixed phone or a mobile phone,
which meets the required location criteria. A central register
may be provided which stores information as to the location of
10 both the fixed and the mobile phones. Alternatively, separate
registers may be provided for the fixed and the mobile phones.
Each of the registers would need to be checked by the processor
which can be provided in any suitable location. Embodiments of
the invention which have group numbers may include fixed and
mobile phones in the same group.

15 Embodiments of the present invention can be implemented with any
known standard such as the GSM standard, the DCS 1800 standard
as well as any other digital standard or any of the known
analogue systems. Embodiments of the invention can be used with
20 any access method such as time division multiple access (TDMA),
frequency division multiple access (FDMA), space division
multiple access (SDMA), spread spectrum access techniques such
as code division multiple access (CDMA) or hybrids of any of the
above techniques.

25 The network configuration shown in Figure 2 is only one example.
The network can take any suitable configuration. For example one
or more of the base station, base station controller and mobile
services switching centre may be provided together.

30 The each register or processor may be arranged to store
information other than the location of user. For example the
capabilities of the mobile station may be stored.

5

CLAIMS:

- 10 1. A telecommunications system comprising a first station and a plurality of second stations, the first station being arranged to request a connection with at least one of said plurality of second stations, said connection request comprising a location criteria to be satisfied by at least one second station.
- 15 2. A system as claimed in claim 1, wherein at least one register is provided for storing location information for at least some of said second stations and/or said first station.
- 20 3. A system as claimed in claim 1 or 2, wherein at least one processor is provided for providing location information for at least some of said second stations and/or said first station.
- 25 4. A system as claimed in claim 1, 2 or 3, wherein the first station attempts to initiate a connection with any second station satisfying the location criteria.
- 30 5. A system as claimed in claim 1, 2 or 3, wherein the first station is arranged to initiate a connection with a second station satisfying the location criteria and falling in a predetermined group of second stations.
- 35 6. A system as claimed in claim 5, wherein a predefined location criteria is associated with the predetermined group.
7. A system as claimed in claim 5 or 6, wherein the predetermined group has a predetermined identifier associated therewith.
- 40 8. A system as claimed in claim 5 or 6, wherein the predetermined group is defined by the user of the first station.
9. A system as claimed in any preceding claim, wherein means are provided for determining which stations satisfy the location

5 criteria.

10. A system as claimed in claim 9, wherein information as to which second stations satisfy the location criteria is sent to the first station.

10 11. A system as claimed in claim 10, wherein the first station comprises means for selecting said at least one of said second stations based on said information.

15 12. A system as claimed in claim 9, wherein the determining means is arranged to define an order in which connections to second stations satisfying the location criteria are to be attempted.

20 13. A system as claimed in claim 9, wherein the determining means is arranged to attempt connections to second stations satisfying the location criteria randomly.

25 14. A system as claimed in any preceding claim, wherein at least one of said second stations is arranged to be able to prevent a connection with the first station if the first station has made a connection request based on the location of the at least one second station.

30 15. A system as claimed in any preceding claim, wherein at least one of said stations is arranged to permit a connection only with predefined first stations if the first station has made a connection request based on the location of said at least one station.

35 16. A system as claimed in any preceding claim, wherein a second station satisfying the location criteria receives a message indicating that a first station wishes to make contact therewith.

40 17. A system as claimed in claim 16, wherein the second station receiving said message is arranged to indicate if the call is to be accepted.

5 18. A system as claimed in any one of the preceding claims, wherein said connection request also comprises information identifying at least one second station and a call is made between said first and the identified at least one station only if the location criteria is satisfied.

10 19. A system as claimed in claim 18, wherein if the second station does not satisfy the location criteria at the time the connection request is made, the system is arranged to make the call at a subsequent time when the second station satisfies the
15 location criteria.

20 20. A system as claimed in any preceding claim, wherein the first station and/or at least one of said second stations is a mobile terminal.

21. A system as claimed in any preceding claim, wherein said first station and/or at least one of said second stations is a fixed terminal.

25 22. A method for use in a telecommunications system comprising a first station and a plurality of second stations, the method comprising the steps of:

defining at the first station a location criteria to be satisfied by at least one second station;

30 requesting a connection with at least one second station satisfying said criteria;

determining which of said second stations satisfy said criteria; and

35 establishing a connection between said first station and at least one second station satisfying said location criteria.

5

ABSTRACT**TELECOMMUNICATION SYSTEM AND METHOD**

10 A telecommunications system comprising a first station and a
plurality of second stations. The first station is arranged to
request a connection with at least one of the plurality of second
stations. The connection request has a location criteria which
has to be satisfied by at least one second station.

15

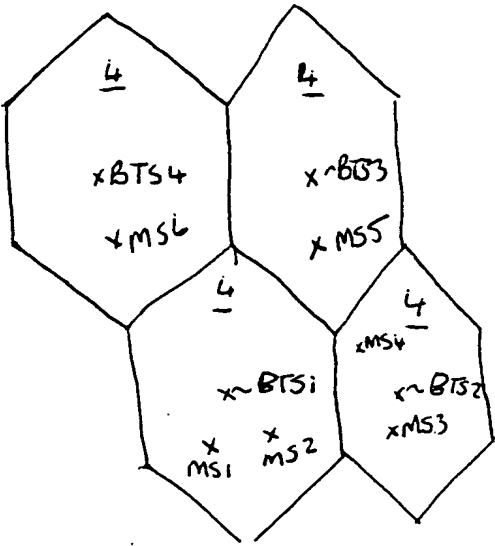
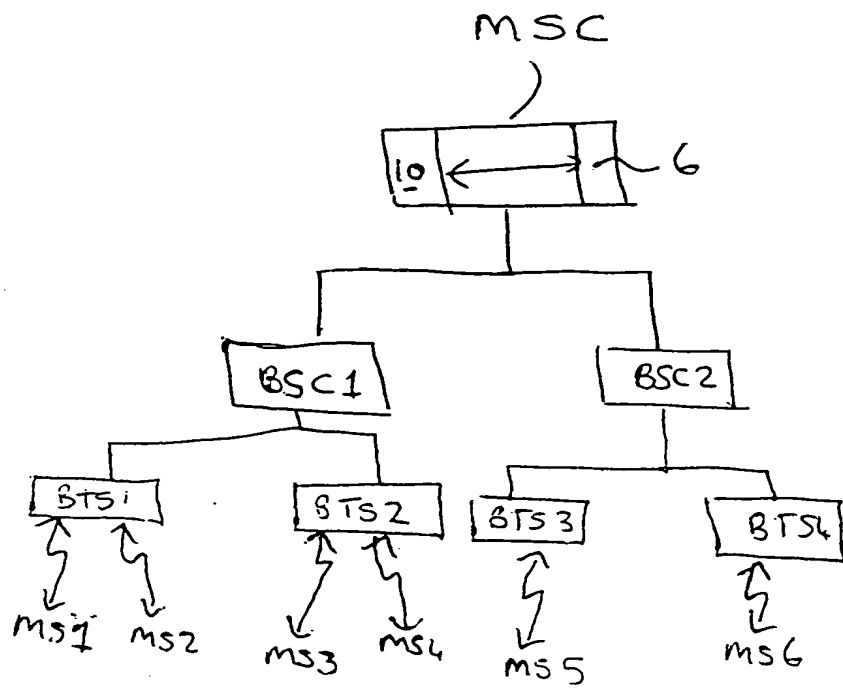


FIGURE 1

FIGURE 2



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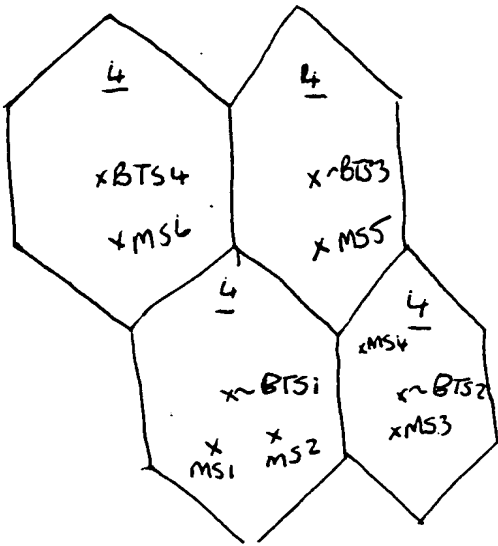
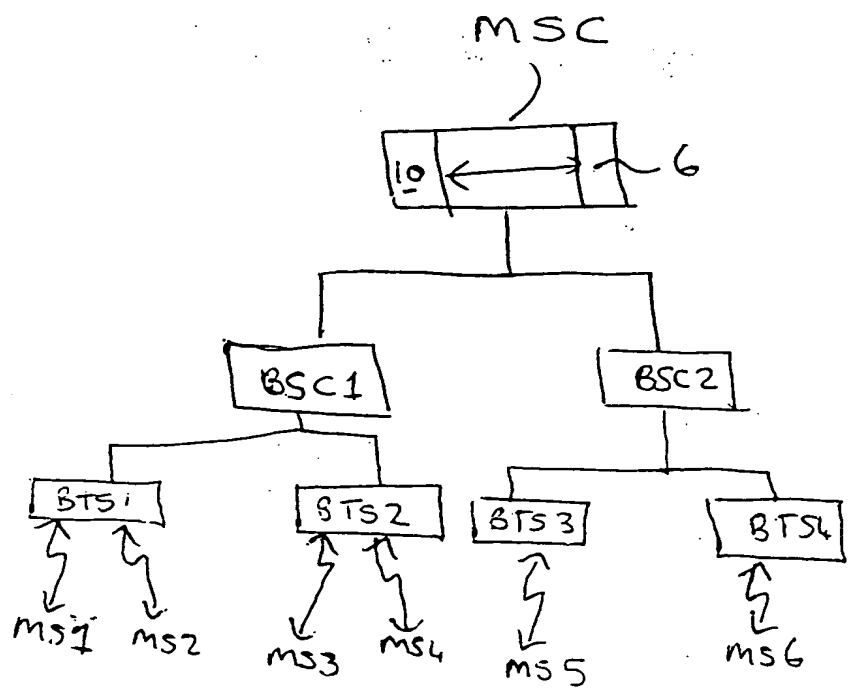


FIGURE 1

FIGURE 2



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